7th Grade Curriculum Requirements

Requirement	Description	What SEPMN Can Do
I.A.1.b. Classify	2. Use scientific (e.g., field guides, charts, periodic tables, etc.) and identification keys for classification.	The SEPMN has an identification key to help students identify what they found from their vertical tow off of a dock, etc.
I.A.3.	Use appropriate tools and techniques to gather, analyze, and interpret data.	Participating in the SEPMN allows students to understand what they would need to use to examine aquatic ecosystems both for identification of different species as well as how to test the water conditions (salinity, dissolved oxygen, etc.).
I.A.7.	Communicate scientific procedures and explanations.	Information will be sent into NOAA researchers using Excel data sheets. Excel is also able to easily create diagrams, charts, etc. to show students how to express results visually.
I.A.8.	Use mathematics in all aspects of scientific inquiry.	Students will be able to estimate the size of algae by using a compound microscope. Students will also be able to explain how measurements in metric units are used in reporting about algae and their blooms. Finally, students will be able to use the metric system and the appropriate equipment to make measurements of length. There are several mathematics exercises in the textbook Algae: A Sourcebook for Teaching about Harmful Algal Blooms.
I.B.	Abilities of Technological Design	All information sent into NOAA researchers will be put into a geographic information systems (GIS) database. The final GIS products will be placed on the SEPMN web site for all students to view and learn about the benefits of GIS.
II.A.1.	All organisms are composed of cells - the fundamental unit of life. Most organisms are single cells; other organisms, including humans, are unicellular.	The SEPMN allows students to have a more in-depth understanding of unicellular organisms.
II.A.2.	Cells carry on the many functions needed to sustain life. They grow and divide thereby producing more cells. This requires that they take in nutrients, which they use to provide energy for the work that cells do	All phytoplankton cells that are found can be studied for more than just identification purposes. Students can study the major components of the cell and its functions.

	and to make the materials that a cell or an organism needs.	
II.A.3.	Living systems at all levels of organization demonstrate the complementary nature of structure and function. Important levels of organization for structure and function include cells, organs, tissues, organ systems, whole organisms, and ecosystems. Specialized cells perform specialized functions in multicellular organisms. Groups of specialized cells cooperate to form a tissue, such as a muscle. Different tissues are in turn grouped together to form larger functional units, called organs. Each type of cell, tissue, and organ has a distinct structure and set of functions that serve the organism as a whole.	Using the identification key for the SEPMN allows students to classify living organisms according to similarities in structure (kingdom, phylum, class, order, family, genus, and species).
II.D.2.	Populations of organisms can be categorized by the function they serve in an ecosystem. All animals, including humans, are consumers, which obtain food by eating other organisms. Decomposers, primarily bacteria and fungi, are consumers that use waste materials and dead organisms for food. Food webs identify the relationships among producers, consumers, and decomposers in an ecosystem.	The SEPMN allows teachers to discuss with students the role of every organism in the environment, specifically looking at phytoplankton (the relationships they have with other organisms and their importance to the food web).
II.D.3.b.	Analyze the effects of overpopulation within an ecosystem on the amount of resources available.	One of the goals behind the SEPMN is to have a greater understanding of algal blooms, both harmful and non-toxic. An explanation of why blooms occur can help students understand why consistent phytoplankton monitoring is necessary.
III.A.3.	Water, which covers the majority of the Earth's surface, circulates through the crust, oceans, and atmosphere in what is known as the "water cycle." Water evaporates from the Earth's surface, rises and cools as it moves to higher elevations, condenses as rain or snow, and falls to the surface where it collects in lakes, oceans, soil, and in rocks underground.	Students can test the water conditions for each area sampled. This will allow them to look at and learn about such things as salinity, dissolved oxygen, depth of light, and temperature changes at the surface and bottom as well as why these elements are essential for living organisms.
III.A.7.a.	Compare and contrast the abiotic factors that effect population growth and size (quantity of light, water, range of temperatures, soil compositions).	This concept is similar to III.A.3, explained above.

III.A.7.c.	Analyze the vital role of single-celled organisms (e.g., phytoplankton) in the carbon and oxygen cycles.	This concept can be studied while students collect phytoplankton and identify species in the classroom.